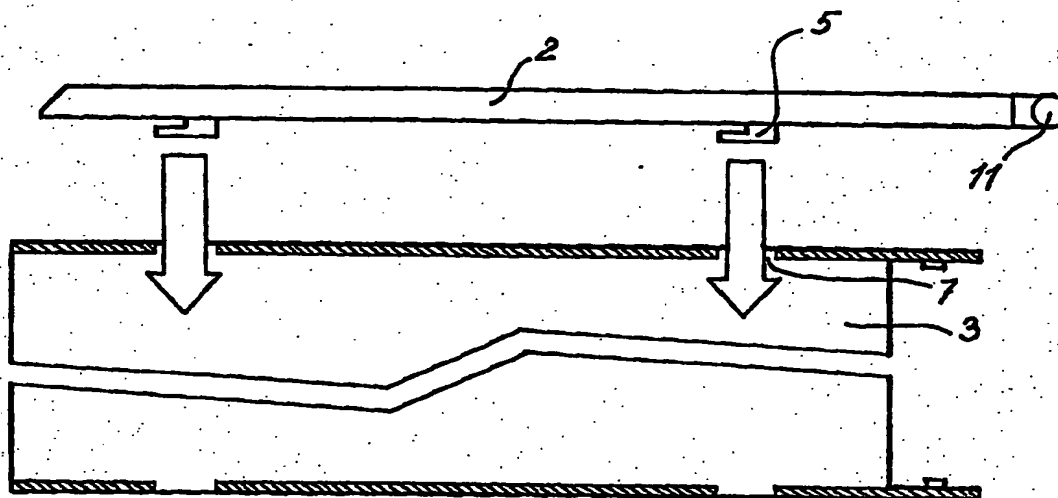




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(21) International Application Number: PCT/DK95/00014 (22) International Filing Date: 10 January 1995 (10.01.95) (30) Priority Data: 0039/94 10 January 1994 (10.01.94) DK (71)(72) Applicant and Inventor: NIELSEN, Frank [DK/DK]; Vinkelvej 2, DK-4000 Roskilde (DK). (74) Agent: CHAS. HUDE; H.C. Andersens Boulevard 33, DK- 1553 Copenhagen V (DK).	(81) Designated States: AM, AT, AT (Utility model), AU, BB, BG, BR, BY, CA, CH, CN, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, ES, FI, FI (Utility model), GB, GB, HU, JP, KE, KG, KP, KR, KZ, LK, LR, LT, LU, LV, MD, MG, MN, MW, MX, NL, NO, NZ, PL, PT, RO, RU, SD, SE, SI, SK, SK (Utility model), TJ, TT, UA, US, UZ, VN, European patent (AT, BE, CH, DE, DK, ES, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML, MR, NE, SN, TD, TG), ARIPO patent (KE, MW, SD, SZ). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>	

(54) Title: **A STORAGE SYSTEM FOR COMPACT DISKS**

(57) Abstract

A storage system for compact disks comprises a holder and a loose rail (2) which is secured to the edge of a compact disk cassette (3). The rail (2) is provided on the top side or at the end with a moulding which together with the moulding of the holder form a fixed and pivotal, respectively, connection. One or several engaging means (5) are according to the invention provided on the bottom side of the rail (2), said engaging means fitting in mating openings (7) in the edge of the compact disk cassette (3). In this manner the existing openings (7) in the compact disk cassette (3) are utilized and accordingly said compact disk cassette need not be particularly formed.

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Title: A storage system for compact disks

Technical Field

The invention relates to a storage system for compact disks, said storage system comprising a holder and a loose rail which is secured to the edge
5 of the compact disk cassette and which is provided on the top side or at the end with a moulding, said moulding forming a fixed and pivotal, respectively, connection together with the moulding of the holder.

Background Art

US-PS No. 3,452,878 discloses a storage rack for magnetic tape car-
10 tridges. The magnetic tape cartridges are provided with projecting adapter pieces, and the top side of each cartridge is provided with a rail which can engage said adapter pieces. At the top, the rail is provided with a moulding fitting in corresponding grooves in a transverse, superjacent holder to which the rail can be secured.

15 Brief Description of the Invention

The object of the invention is to provide a storage system for compact disks, which is far more simply structured than the previously known systems.

A storage system of the above type is according to the invention
20 characterised in that the bottom side of the rail is provided with one or several engaging means fitting in corresponding openings in the edge of the compact disk cassette. In this manner the already existing openings in the compact disk cassette are utilized, and accordingly the compact disk cassette need not be formed in a special way.

According to a particularly advantageous embodiment of the invention, the engaging means are angular, said means being inserted in the openings in the edge of the cassette and then horizontally displaced.

According to an alternative embodiment of the invention, the engaging means are of a split type with barbs being inserted in the openings in the edge of the cassette. The engaging means may alternatively be composed of separate means inserted in the openings in the edge of the cassette through openings in the rails.

According to a second embodiment of the invention, the rail is provided on each side with one or more grooves insertable in corresponding milled grooves in a holder.

As an alternative, it is possible to use two rails being laterally reversed relative to one another, whereby said rails are provided at one end with a flat round pin and can be mounted on both sides of the cover of the compact disk cassette, said round pins being inserted in a holder/folder back provided in the top and the bottom with milled grooves mating the pins of the rail.

Brief Description of the Drawings

The invention is explained in greater detail below with reference to the accompanying drawings, in which

Figs. 1A, 1B, and 1C illustrate a rail with angular engaging means insertable in the edge of a compact disk cassette,

Figs. 2A and 2B illustrate an alternative embodiment of the engaging means of the rail during the insertion into the edge of a compact disk cassette,

Fig. 3A illustrates a rail provided on both sides with one or more grooves insertable in corresponding milled grooves in a holder,

Fig. 3B illustrates how the rails are mounted in the holder,

Fig. 4A illustrates a rail with two milled grooves in one end and provided
5 with round pins, said milled grooves mating corresponding milled grooves in a wall section,

Fig. 4B is a side, front, and top view of the wall section,

Fig. 4C illustrates how the rails are mounted in the wall section,

Fig. 4C is a perspective view of the mounted cassettes,

10 Fig. 5A illustrates two rails being laterally reversed relative to one another, which can be mounted at both the upper and the lower edge of the cover of the compact disk cassette, each rail being provided at one end with a flat round pin insertable in a holder,

Fig. 5B illustrates how the rails are mounted on each cassette and
15 subsequently inserted in the holder,

Fig. 5C illustrates the mounted cassettes.

Best Mode for Carrying Out the Invention

The storage system shown in Figs. 1A, 1B, and 1C for compact disks 19
comprises a holder 1 and a loose rail 2 which can be secured to the edge
20 of a compact disk cassette 3. On the top side or at the end, the rail 2 is provided with a moulding which forms a fixed and pivotal, respectively, connection together with the moulding of the holder 1. On the bottom

side, the rail 2 is provided with one or several angular engaging means 5 fitting in corresponding openings 7 in the edge of the compact disk cassette 3. These openings 7 result from the casting of the cassette whereby inward webs are formed which serve to retain illustrating material for the compact disk. The rail 2 with the 90° angular engaging means 5 are inserted vertically in the openings in the edge of the compact disk cassette 3 and subsequently horizontally displaced in the openings 7 with the result that the rail 2 is clamped into position.

Each rail 2 is of a width of approximately 10 mm and a height of approximately 5 mm, and it is made of aluminium or plastics.

As an alternative, the engaging means 5 can be of the split type with barbs 5a, cf. Figs. 2A and 2B. Then the rail 2 with the split engaging means 5a is vertically inserted in the openings 7 in the edge of the compact disk cassette 3 and pressed into position. In this manner the compact disk cassette 3 is retained by means of the engaging means 5a.

The engaging means may alternatively be composed of separate or loose means which can be secured to a cassette through openings in the rail.

Figs. 3A and 3B illustrate a rail 2, which is provided on each side with one or more grooves 8 insertable in mating milled grooves 9 in a holder 1. The holder 1 is for instance mounted below a shelf by means of double-faced tape or screws 18. The compact disk cassette 3 is mounted and retained on the rail 2 which can be inserted in and removed from, respectively, the milled grooves 9 of the holder 1. The compact disk cassette 3 can be opened without necessitating a demounting of the rail 2.

Figs. 4A and 4B illustrate a rail 2, which is provided at one end with two milled grooves 10 and two round pins 11. The milled grooves 10 and the round pins 11 fit in corresponding milled grooves 12 in a wall section 13.

The wall section comprises a hollow lower part, at which the section is secured to a wall surface by means of screws 18. The wall section comprises further an upper part provided with the milled grooves 12. Fig. 4B illustrates how the round pins 11 are inserted in the milled grooves 12 and then horizontally displaced so as finally to be turned in a downward direction. As a result, the rail 2 cannot be removed directly. The wall section 13 retains a plurality of rails 2 with compact disk cassettes 3 mounted thereon in the stored position. The desired compact disk cassette 3 is tipped upwards whereby the rail 2 is in its vertical position. In this position, the compact disk cassette 3 can be opened and the compact disk 19 can be removed. The compact disk cassette 3 remains in the vertical position until it is closed and tipped into its storing position.

Figs. 5A, 5B, and 5C illustrate an alternative embodiment where two rails 2 are used, said rails being symmetrical relative to one another. The rails are mounted on both the top and the bottom edge of the cover of the compact disk cassette 3. At the end, the rails 2 are provided with a flat round pin 14. The pins 14 are inserted in a holder in form of a folder back 15, which is provided with a milled groove 16 in the top and the bottom, said milled groove receiving the pins 14. The folder back 15 retains for instance eight compact disk cassettes 3. The desired compact disk cassette 3 can be opened and the compact disk 19 in question can be removed from said cassette 3.

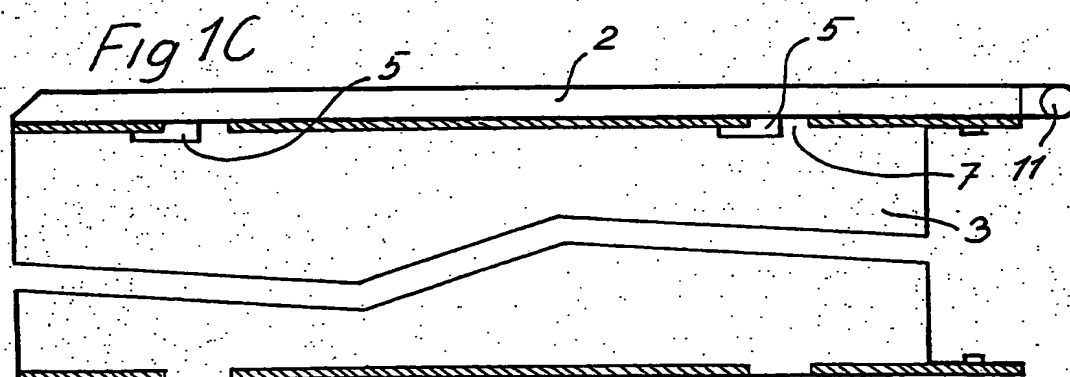
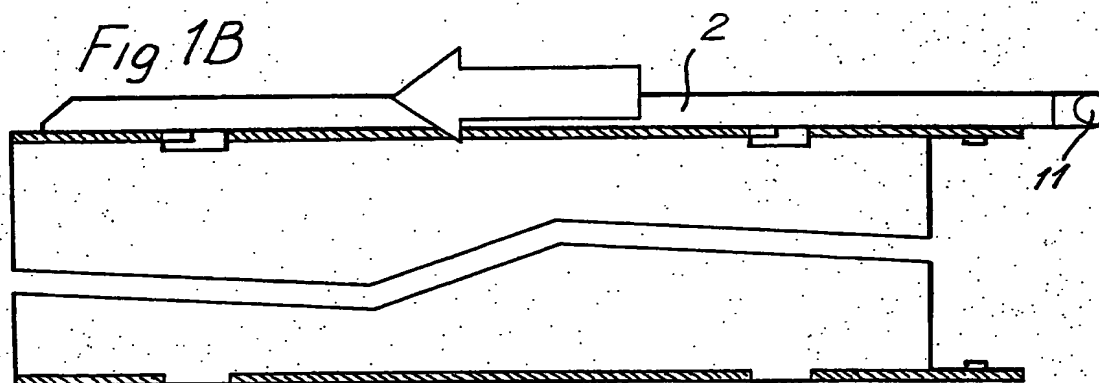
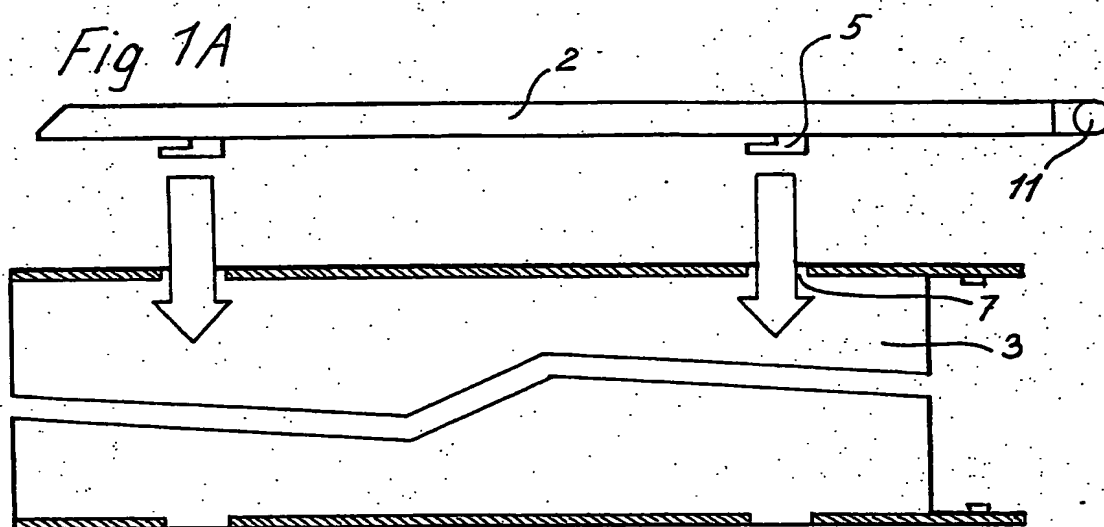
Claims.

1. A storage system for compact disks comprising a holder and a loose rail, which is secured to the edge of a compact disk cassette, said rail being provided on the top side or at the end with a moulding which
5 together with the moulding of the holder form a fixed and pivotal, respectively, connection, characterised in that the bottom side of the rail (2) is provided with one or several engaging means (5) fitting in mating openings (7) in the edge of the compact disk cassette (3).
2. A storage system as claimed in claim 1, characterised in
10 that the engaging means (5) are angular and inserted in the openings (7) on the edge of the compact disk cassette (3) and then horizontally displaced.
3. A storage system as claimed in claim 1, characterised in
15 that the engaging means are of the split type with barbs (5a) being inserted in the openings (7) in the edge of the compact disk cassette (3).
4. A storage system as claimed in the preceding claims 1 to 3, characterised in that the rail (2) is provided on both sides with one or more grooves (8) insertable in mating milled grooves (9) in a holder (1).
5. A storage system as claimed in the preceding claims 1 to 3, characterised in that the rail (2) comprises two milled grooves (10) in
20 one end and is provided with two round pins (11), said milled grooves (10) mating milled grooves in a wall section (13).
6. A storage system as claimed in the preceding claims 1 to 3, characterised in that it comprises two substantially symmetrical rails (2),
25 which at one end are provided with a flat round pin (14) and are mounted on both sides of the cover of the compact disk cassette (3), the flat pins

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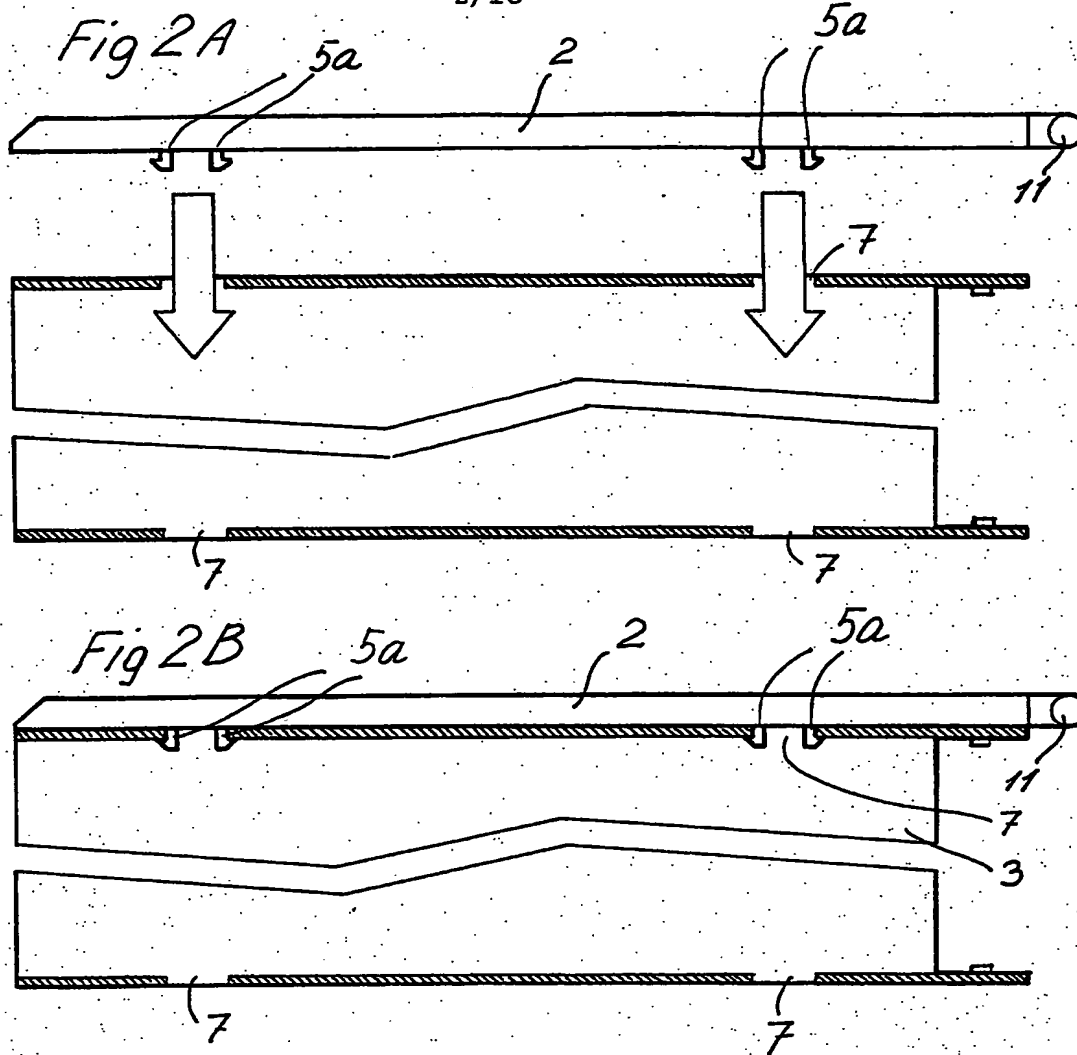
(14) of said rails being inserted in a holder/folder back (15) which can receive the flat pins (14) of the rails.

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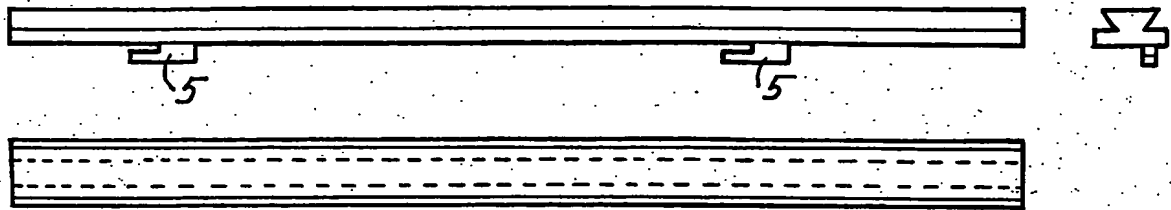
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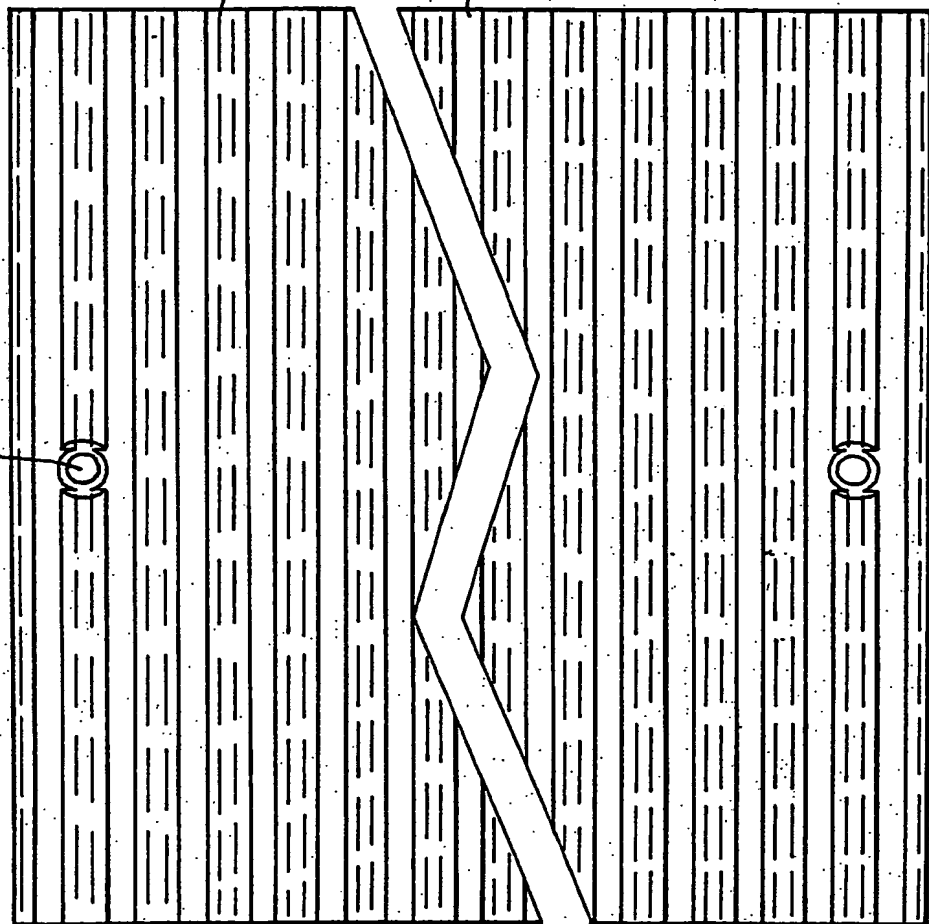
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Fig 3A



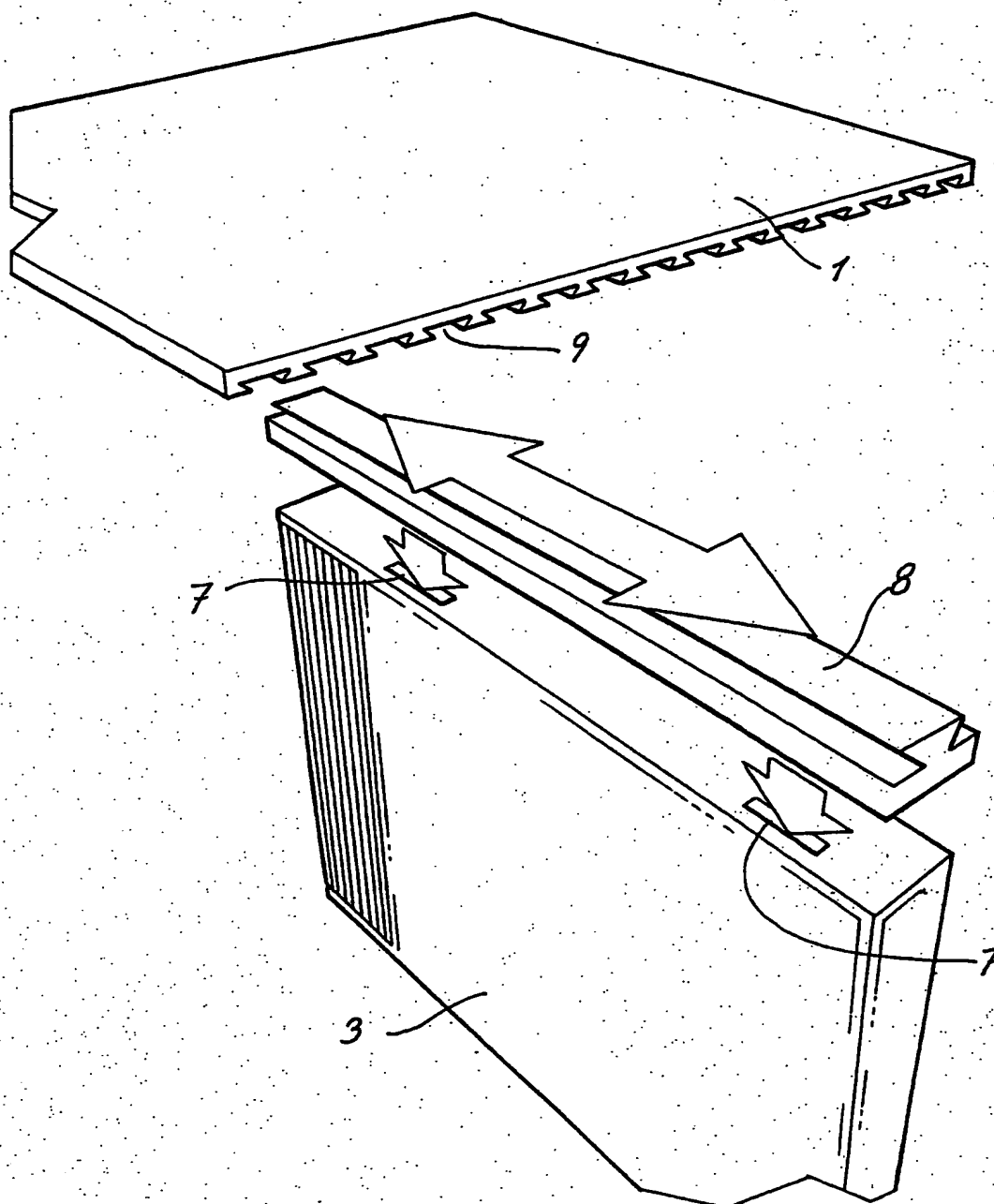
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Fig 3B



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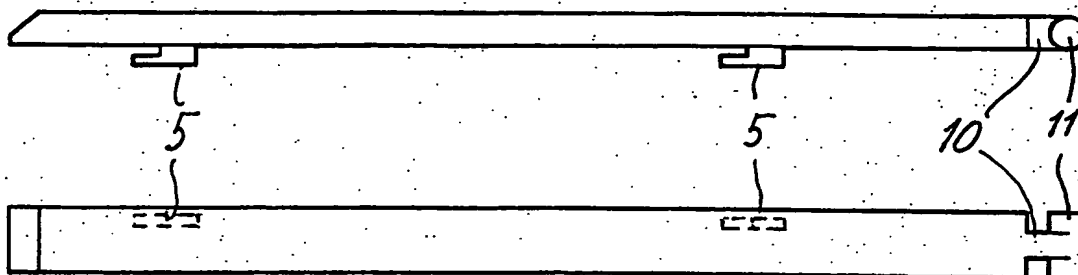


Fig 4A

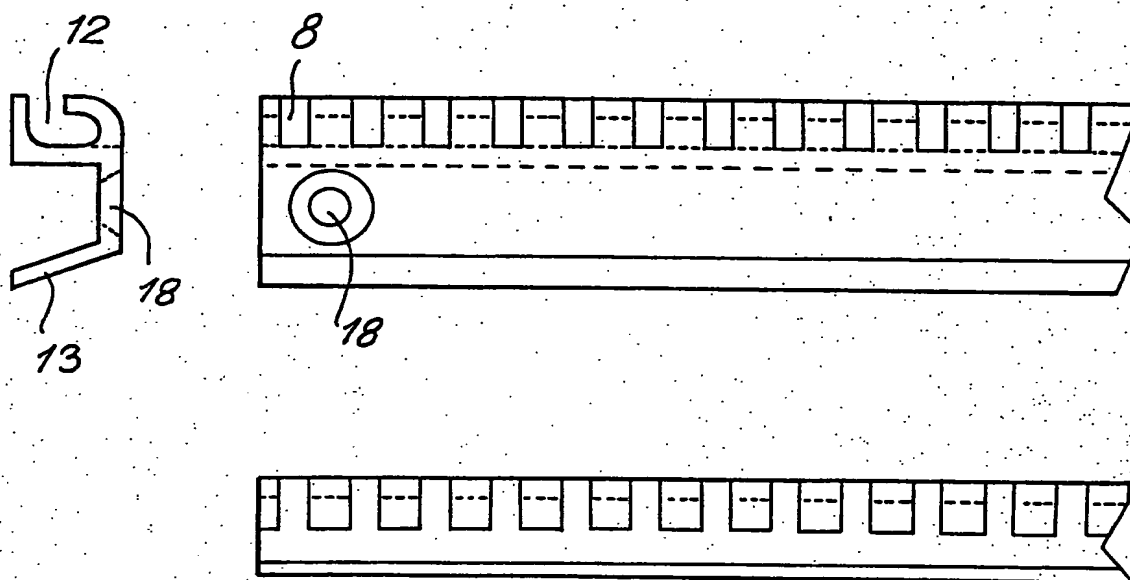


Fig 4B

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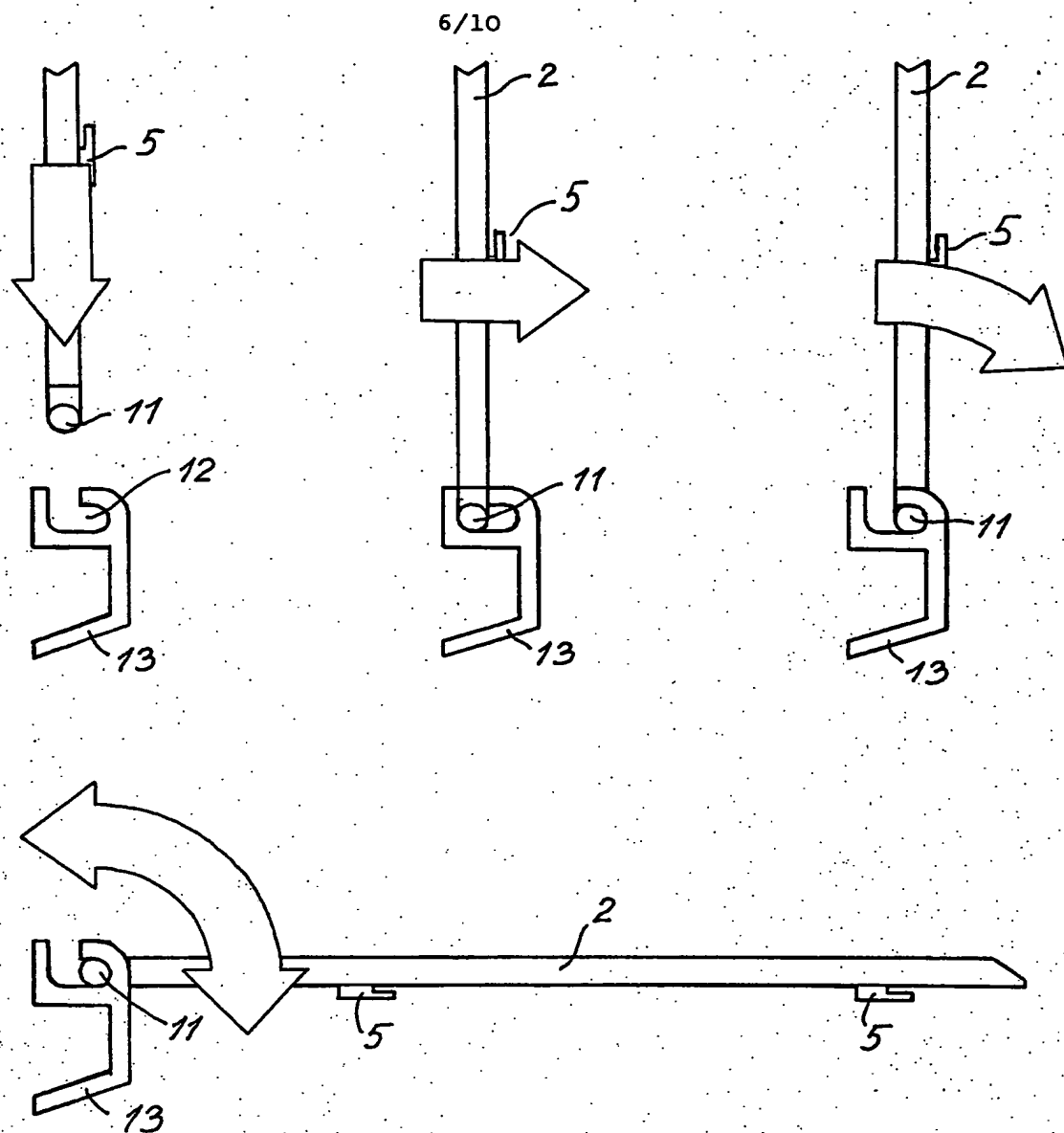
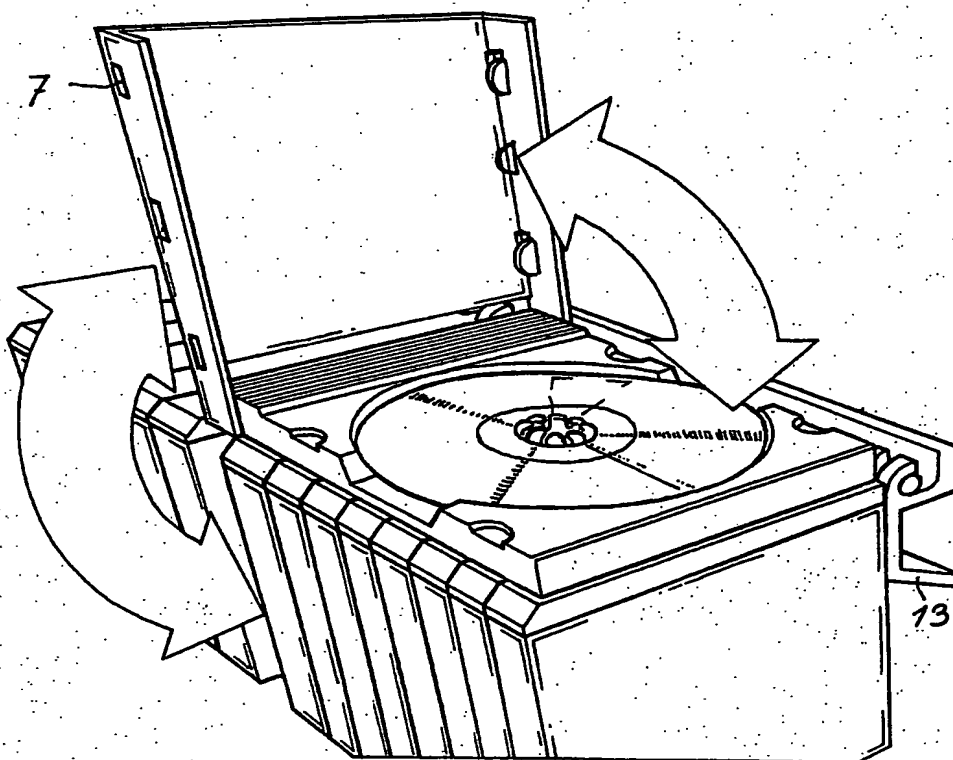
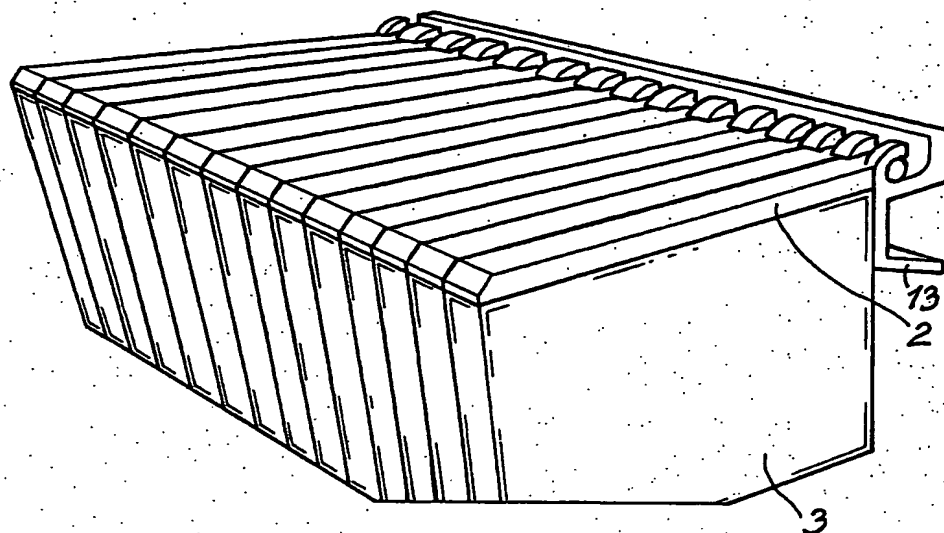


Fig 4C

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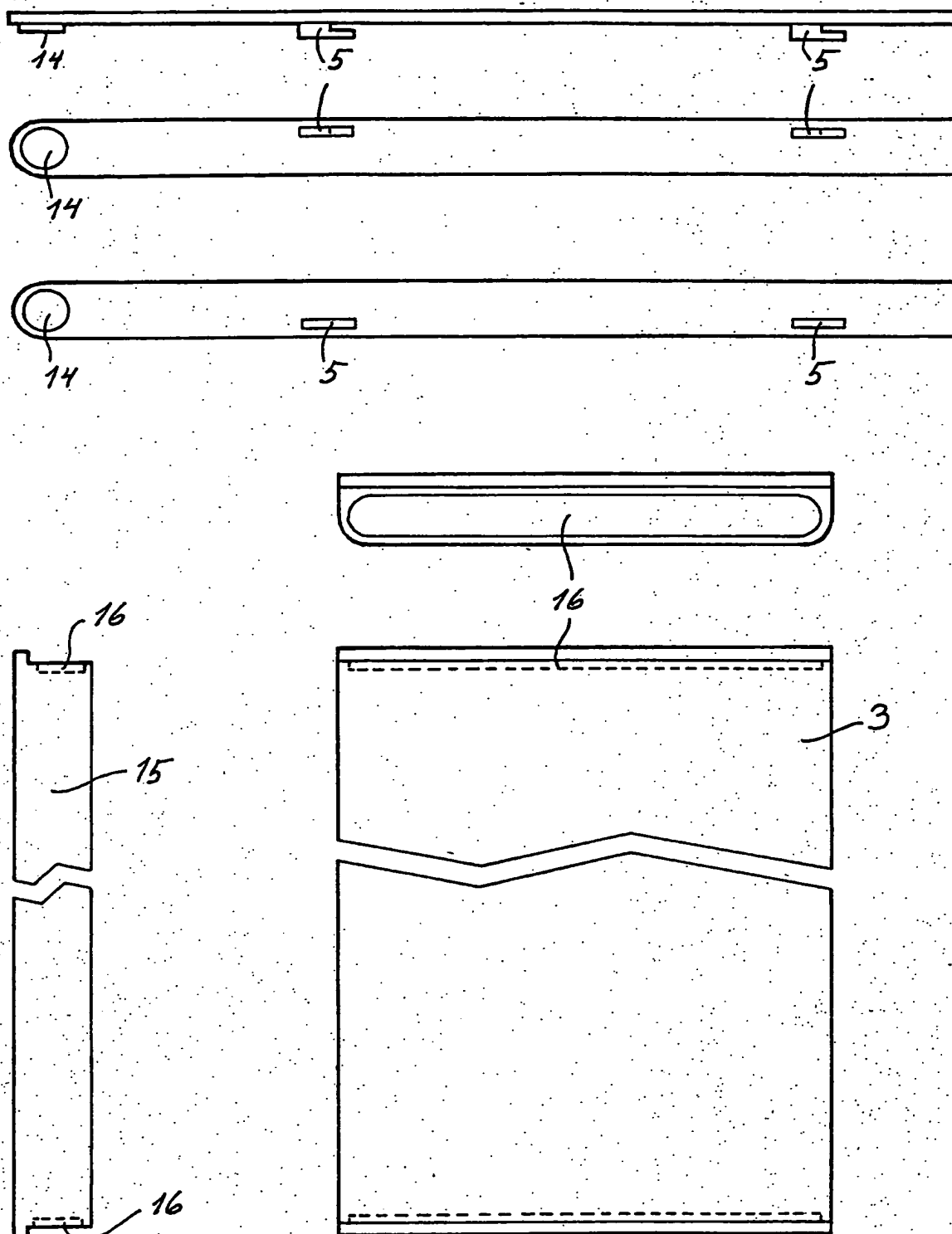
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Fig 4D



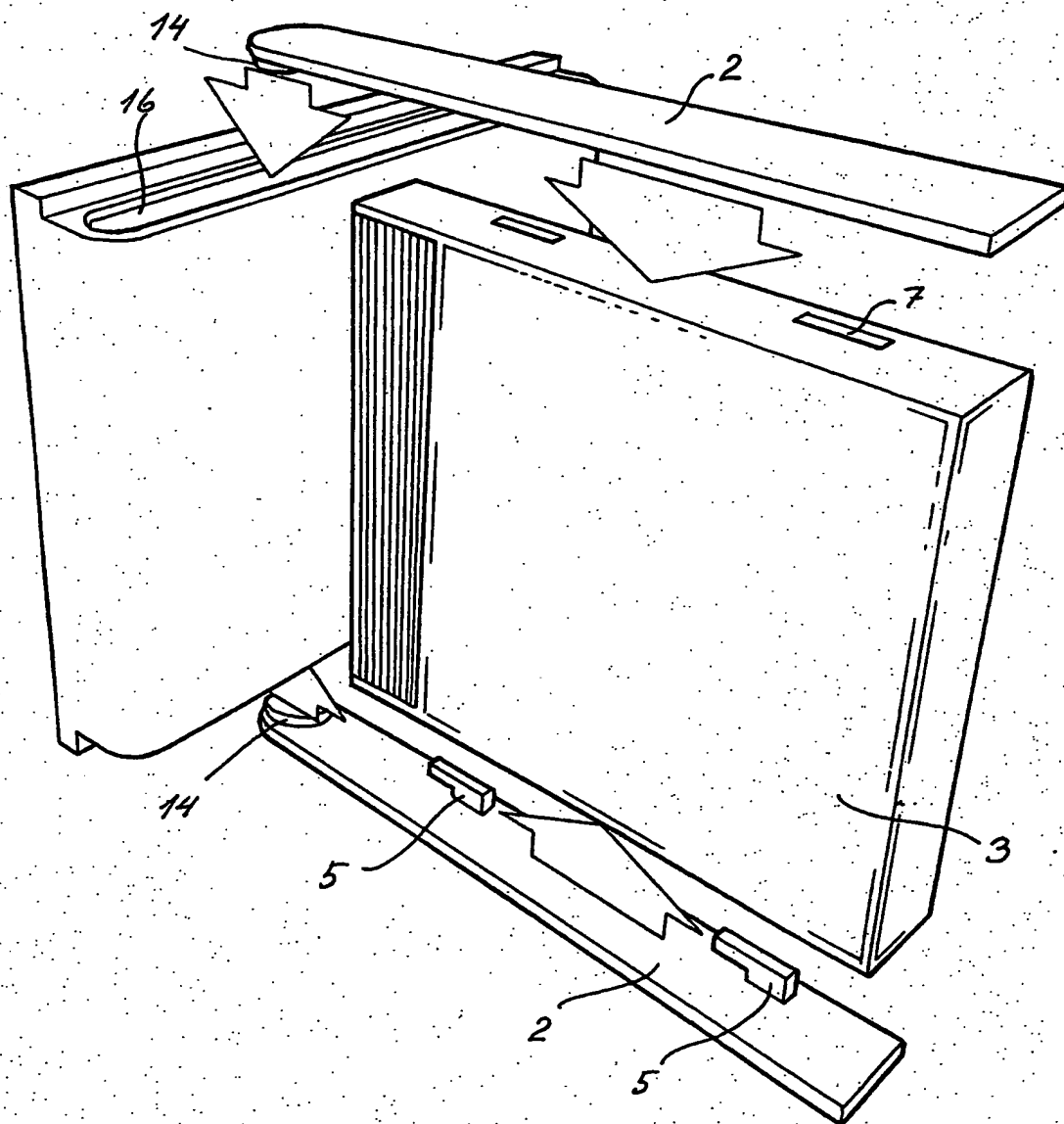
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Fig 5A

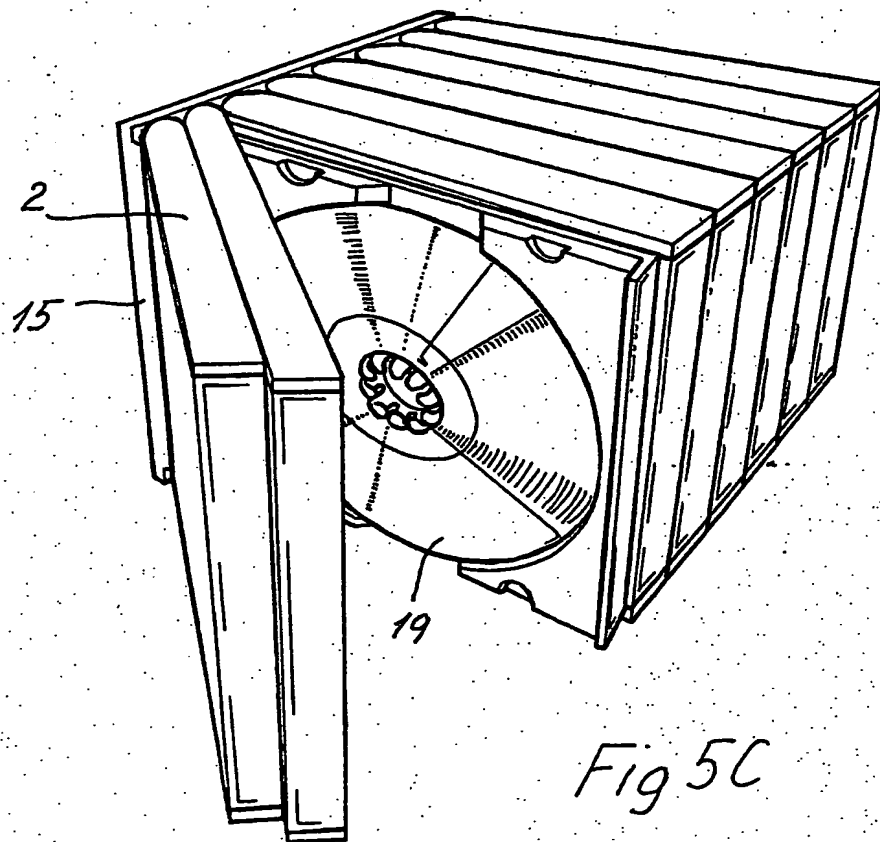
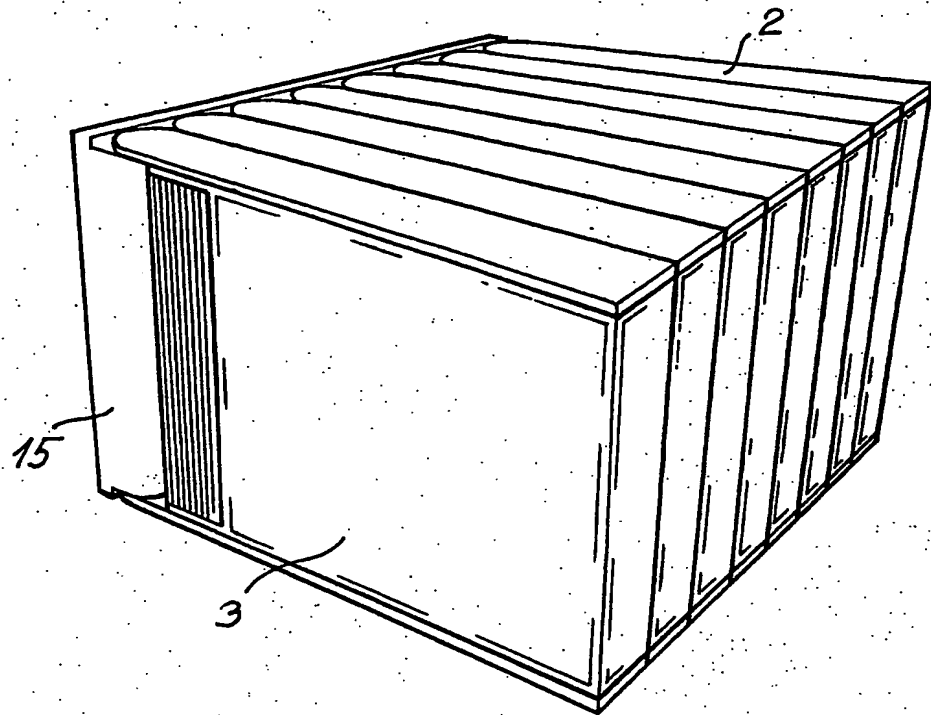


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Fig 5B**SUBSTITUTE SHEET**

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Fig 5C

INTERNATIONAL SEARCH REPORT

International application No.

PCT/95/00014

A. CLASSIFICATION OF SUBJECT MATTER

IPC6: G11B 33/04

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

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IPC6: A47B, A47F, B65D, G11B

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	WO, A1, 9203823 (KAPPERS, J.), 5 March 1992 (05.03.92), figure 1, detail 7, claims 1-2 --	1
Y	US, A, 3452878 (S.R. SMITH), 1 July 1969 (01.07.69), column 2, line 16 - line 43, figure 1 --	1
A	CH, A5, 672035 (SOMERS, S.B.), 13 October 1989 (13.10.89), figures 1,7, detail 2d, abstract --	1-6

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Date of the actual completion of the international search

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C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US, A, 4330161 (A.B. KHAWAND), 18 May 1982 (18.05.82), column 2, line 4 - line 52, figures 1-3 -----	1-6

INTERNATIONAL SEARCH REPORT
Information on patent family members

01/04/95

International application No.
PCT/DK/95/00014

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
WO-A1-	9203823	05/03/92	AU-A-	8494891	17/03/92
			NL-A-	9001867	16/03/92
US-A-	3452878	01/07/69	NONE		
CH-A5-	672035	13/10/89	NONE		
US-A-	4330161	18/05/82	NONE		

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